Listing of Claims

The following listing of claims replaces all previous versions and listings of claims. Please note that claims 20, 53, 57, 61-67, 70 and 71 are being amended. Further, claims 50, 51, 52, 54, 55, 58, 68 and 73 are being cancelled.

1-19. Canceled

20. (Currently Amended) A process for forming layers in electronic devices comprising the steps of:

providing a reaction chamber, the reaction chamber comprising a cold wall chamber;

placing a semiconductor wafer in said reaction chamber;

heating said semiconductor wafer with a thermal heating device placed adjacent to said wafer to a temperature of at least about 300°C.;

pulsing a precursor fluid into said reaction chamber, said precursor fluid forming a solid layer on said semiconductor wafer;

purging said reaction chamber by flowing an inert gas through said reaction chamber after each pulse in order to substantially remove any of said precursor fluid not converted into a solid; and

repeating the above steps a plurality of times in order to increase the thickness of the solid layer and wherein the process further comprises the step of annealing the solid layer multiple times during formation of the layer, the multiple annealing steps occurring after the reaction chamber is purged by the inert gas and prior to the next pulse of the precursor fluid ~~after certain pulses of the precursor fluid~~, the solid layer being annealed by exposing the solid layer to thermal light energy, the light energy heating the solid layer to a temperature sufficient to anneal the layer.

21. (Original) A process as defined in claim 20, wherein said precursor fluid comprises a gas.

22. (Original) A process as defined in claim 20, wherein said thermal heating device comprises an electrical resistance heater.

23. Canceled

24. (Original) A process as defined in claim 20, further comprising the step of maintaining said reaction chamber at a pressure of less than about 760 torr when pulsing said precursor fluid into said reaction chamber.

25. (Original) A process as defined in claim 20, further comprising the step of maintaining said reaction chamber at a pressure of less than about 3 torr when pulsing said precursor fluid into said reaction chamber.

26-28. Canceled

29. Canceled.

30. (Original) A process as defined in claim 20, further comprising the step of maintaining said reaction chamber at a pressure of from about 10^{-2} torr to about 10^{-7} torr when pulsing said precursor fluid into said reaction chamber.

31-49. Canceled.

50. Canceled.

51. Canceled.

52. Canceled.

53. (Currently Amended) A process as defined in claim 20 ~~52~~ , wherein said precursor fluid comprises a liquid vapor.

54. Canceled.

55. Canceled.

56. Canceled.

57. (Currently Amended) A process as defined in claim 20 ~~52~~, wherein said thermal light energy is supplied by light energy sources positioned outside said reaction chamber.

58. Canceled.

59. Canceled.

60. Canceled.

61. (Currently Amended) A process as defined in claim 20 ~~52~~, wherein said solid layer comprises a dielectric material.

62. (Currently Amended) A process as defined in claim 20 ~~52~~, wherein said solid layer comprises a conductive material.

63. (Currently Amended) A process as defined in claim 20 ~~52~~, wherein said solid layer comprises zirconium oxide.

64. (Currently Amended) A process as defined in claim 20 ~~52~~, wherein said precursor fluid comprises a hydride.

65. (Currently Amended) A process as defined in claim 20 ~~52~~, wherein said solid layer comprises a material selected from the group consisting of tungsten, tungsten nitride, tantalum nitride, titanium nitride, copper, aluminum, ruthenium oxide, iridium oxide, and silver.

66. (Currently Amended) A process as defined in claim 20 ~~52~~, wherein said solid layer comprises a material selected from the group consisting of zirconium oxide, aluminum oxide, a nitride, barium strontium titanate and a silicate.

67. (Currently Amended) A process as defined in claim 20 ~~52~~, wherein said solid layer comprises zirconium hafnium oxide.

68. Canceled.

69 Canceled.

70. (Currently Amended) A process as defined in claim 20 ~~52~~, wherein the reaction chamber includes walls, the walls being made from an insulating material.

71. (Currently Amended) A process as defined in claim 20 ~~52~~, wherein the reaction chamber includes a cooling system for cooling the walls of the reaction chamber.

72. (Previously Presented) A process as defined in claim 70, wherein the insulating material comprises quartz.

73. Canceled.

74. Canceled.

75. (Currently Amended) A process for forming layers in electronic devices comprising the steps of:

providing a reaction chamber, the reaction chamber comprising a cold wall chamber;

placing a substrate in said reaction chamber;

pulsing a precursor fluid into said reaction chamber;

exposing said precursor fluid to thermal light energy in said reaction chamber simultaneous with each pulse of the precursor fluid, the light energy causing said precursor fluid to convert into a solid layer on said substrate;

after each pulse of the precursor fluid, decreasing the amount of thermal light energy and purging the reaction chamber by flowing an inert gas through the reaction chamber, the inert gas cooling the solid layer and substantially removing any of the precursor fluid not converted into a solid; and

wherein between selected pulses of the precursor fluid and after cooling, annealing the solid layer by exposing the solid layer to thermal light energy prior to the next pulse, the light energy heating the solid layer to a temperature sufficient to anneal the layer.

76. (Previously Presented) A process as defined in claim 75, further comprising the step of maintaining said reaction chamber at a pressure of less than about 5 torr when pulsing said precursor fluid into said reaction chamber.

77. (Previously Presented) A process as defined in claim 75, wherein the reaction chamber includes walls, the walls being made from an insulating material.

78. (Previously Presented) A process as defined in claim 75, wherein the reaction chamber includes a cooling system for cooling the walls of the reaction chamber.

79. (Previously Presented) A process as defined in claim 75, wherein the solid layer is annealed after each pulse of the precursor fluid.